

MESA Messenger

MESA and the fight against COVID-19

By Cashell Jaquish, PhD, MESA Project Office, NHLBI

I would like to take a moment to introduce myself. My name is Cashell Jaquish and I am the new National Heart, Lung, and Blood Institute (NHLBI) Project Officer for the MESA Study. My research interests are on the relationship between genetics and cardiovascular disease and how genetics may affect your heart health. I am honored to be working with you and the MESA investigators and hope to get to know you better soon. There are many exciting upcoming opportunities to participate in MESA including a COVID-19 study and planning for another exam in 2022. Today, I would like to tell you a bit more about MESA's participation in NIH COVID-19 research.

About one year ago when we began to feel the effects of the pandemic, the National Institutes of Health (NIH) moved rapidly to begin work on vaccine development and testing of various treatments for COVID-19. You have probably heard of the vaccine development effort called "Operation Warp Speed". The NIH also quickly developed a plan with the goals of (1) understanding COVID-19, (2) preventing COVID-19, (3) detecting and treating COVID-19 and (4) lessening the threat of COVID-19. The plan can be found here: tinyurl.com/CovidNIH



MESA led the way to address the first goal of understanding who gets COVID-19 and how it affects cardiovascular health. You may have received a call from MESA staff asking questions about COVID-19. Your answers to those questions have been a huge help in understanding this disease. Many other studies of people like you have joined MESA to form the Collaborative Cohort of Cohorts for COVID-19 Research (C4R). This study of more than 53,000 people all across the United States is a powerful way to learn how the pandemic has influenced your life and health now and in the future. We are thankful for your participation and you will be hearing more from us about C4R soon.

We greatly value your ongoing commitment to MESA and look forward to seeing you at the next MESA Exam. MESA continues to lead the way to understand and prevent heart disease and other related conditions. We couldn't do it without you! Please get vaccinated, and if you haven't yet, please wear a mask and practice social distancing. I look forward to meeting you.

Thank you,

Cashell 



How Long Does a Low Cardiovascular Risk Score Last?

By Omar Dzaye, MD, PhD, Johns Hopkins University

We can estimate our risk for heart disease using a measurement called coronary artery calcium (CAC). The CAC score measures the amount of calcium built up in plaque in the arteries of the heart. The coronary arteries supply blood to the heart muscle and do not normally contain calcium when we are young. The absence of coronary artery calcium generally indicates a person is at low risk for a future heart attack. In MESA, you had your CAC score measured with a special x-ray test called a CT scan. Researchers wondered, “if someone had no coronary artery calcium (zero score) when the test was done, how long is that zero score reliable? When does the test need to be repeated to see if calcium has developed?” Using MESA data, they sought to provide an estimation of the so-called “warranty period” of zero coronary artery calcium, or the period of time in which individuals can continue to be considered low risk, before they would need a repeat scan to reevaluate their risk.

The researchers considered the impact of age, sex, race/ethnicity, and cardiovascular risk factors on the timing of when calcium started to be seen on the repeat CT scans. Their goal was to provide a precise, yet easy-to-use, set of recommendations about the best timing of follow-up CAC scans, when the original result was normal (zero score). This information is important for policymakers, guideline writers, and clinicians who make decisions for everyday medical care.

The MESA researchers found that the “warranty period” of zero coronary artery calcium varies considerably depending on age, sex, race/ethnicity, and cardiovascular risk profile of the individual. For example, the data show that White individuals develop enough coronary artery calcium to raise their score above zero sooner than people of Chinese ancestry, who are similar in age and cardiovascular risk factors. In other words, race/ethnicity is a factor that impacts the warranty period of a CAC score of zero. The warranty periods for Black and Hispanic women lay in between Chinese and Whites. These

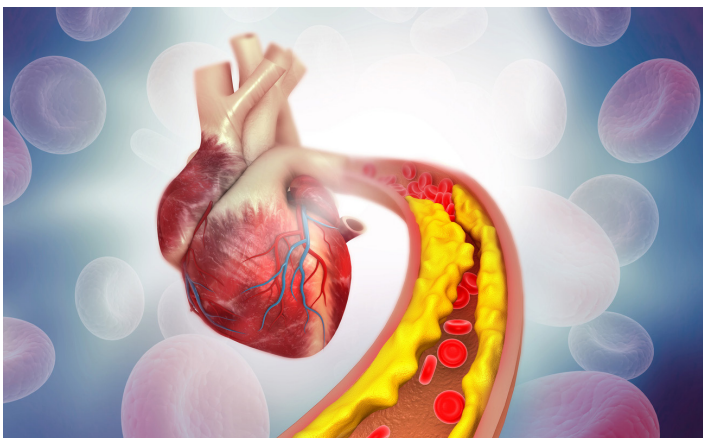


Image: Coronary artery calcium scores measure the amount of plaque building up inside the heart arteries.

racial/ethnic differences were more pronounced in men than in women. Diabetes had the greatest impact on the warranty period, associated with a shorter warranty in both women and men.

Our results also consider the impact of repeat coronary calcium score testing among people with a zero CAC score on predicting future heart attacks. Our results suggest that a repeat CAC scan might be considered no later than 3 years after the original test for a high risk person, no later than 5 years for an intermediate risk person, and no later than 7 years for a low risk person. For a person with diabetes, 3 years seems to be the best time.

To our knowledge, MESA is the only large U.S. study population that allows for these types of calculations because of how much data you’ve contributed! These findings will help doctors better understand how often to monitor patients to keep an eye on their coronary artery calcium. This study has already been incorporated into two new clinical practice guidelines. The Endocrine Society and the National Lipid Association have both included these recommendations from MESA. Thank you for your contributions! ❤️

Sleep Patterns Might Impact Health

By Tianyi Huang, DSc and Susan Redline, MD, MPH, Harvard Medical School

Getting a good night's sleep is important for health. Specifically, good sleep may help prevent diabetes, heart disease, and other chronic health conditions, as well as help with mood, attention, and alertness. Most prior research focused on the total number of hours of sleep per night we get, leading to the recommendation for most adults to get an average of 7 to 8 hours of sleep per night. What is less understood is whether night-to-night differences in sleep patterns can influence health. MESA researchers wondered whether large differences in sleep patterns across the week—for example, going to sleep much later on some nights than on others (or sleeping in much more on some mornings than on others)—might impact risk for developing heart and other diseases.

We answered this question by using the information collected at the MESA Exam 5 Sleep Visit. During that visit, over 2,000 participants wore a watch-like device for measuring sleep-wake patterns for one week, providing information on when each person went to sleep and woke up every night. Approximately five years later, participants with the most irregular bedtimes and waketimes—those whose bedtimes varied by more than an average of 90 minutes per night—had about a 50% increased risk of developing metabolic syndrome (e.g., high blood pressure, high blood sugar, abnormal blood lipids) compared to people with the most regular sleep schedules. People with the most irregular sleep patterns also had more than double the risk of developing a cardiovascular event, including heart attack, stroke, or death from cardiovascular disease, compared to the most regular sleepers.



Image: New MESA research supports the health benefits of a regular sleep schedule.

This new research from MESA supports the benefits of regular sleep schedules. The research was published in two medical journals and has stimulated health care providers to not only encourage their patients to get 7 to 8 hours of sleep per night but also to try to get to bed and wake up around the same times every day. ❤️

MESA hosted a series of "Town Hall" style webinars in April 2021 to bring the MESA community together and share updates. If you were unable to join or simply wish to watch again, recordings are available online in English, Spanish, Mandarin, and Cantonese at:
<https://tinyurl.com/MESATownHall>

Questions? Contact your MESA Field Center at:

Wake Forest:

Katy Melius - (336) 716-7407

Columbia:

Vijay Nayudupalli - (212) 305-9932

Johns Hopkins:

Imene Benayache - (410) 614-2488

Minnesota:

Jackie Muñoz - (612) 625-8560

Northwestern:

Grace Ho - (312) 503-3298

UCLA:

Anthony Sosa or Sameh Tadros - (626) 979-4920

MESA-MIND Now Delivers!

By Timothy Hughes, PhD, Wake Forest University

MESA studies have to be creative and adapt to challenging times, especially during the COVID-19 pandemic. For example, MESA-MIND is now providing the option for you to complete cognitive testing visits in the comfort of your own homes and in the language you chose for MESA visits. MESA has partnered with GrandPad, Inc. to begin delivering their Senior-friendly tablet devices to your doorstep. When you schedule a video cognitive visit, a tablet device will be delivered to your home and our MESA team member will call you at the scheduled time. No set up is required. Once you complete the video interview, our team member will discuss options for return of the device. If you prefer to complete the cognitive function testing visit on the phone or to come to the MESA clinic, those options remain available, as well.

Our goal remains the same, collect the highest quality data while making it easier for all MESA participants to participate in the important work we are doing together.



Image: The GrandPad device provides a way for you to complete the MESA-MIND cognitive testing visit from the comfort of home!

♥ MESA and the MESA Messenger newsletter are funded by the National Heart, Lung, and Blood Institute (NHLBI). ♥

Here is a question we got from YOU about MESA-MIND at our MESA Town Hall Webinar:

How can I maintain my cognitive function or improve memory? Is Alzheimer's disease preventable?

Recent reports have summarized for us what we currently know about prevention, treatment and care for dementia, <https://tinyurl.com/brainwellness>. Here are a few key 'take home' messages. While Alzheimer's disease and other age-related dementias are difficult to treat, their risk factors can be addressed for prevention! These age-related dementias are not inevitable and not all predetermined by our genes. That means we can work to reduce our risk over our life by: getting more education; exercising; keeping mentally active; quitting smoking; treating common medical conditions like hypertension, diabetes, depression, and hearing loss; and maintaining close social contacts. **Let's review a few of these in detail:**

(1) Moving more is very important for brain health. Exercise is not just about going to the gym. It is also about moving more. Exercise is good for your heart AND supplies more blood to your brain, which can prevent dementia.

(2) Keeping your brain active by learning more, thinking more and socializing more may improve your brain health.

(3) Controlling blood pressure and conditions like diabetes are also important for your brain health. The top two actions that you can take to keep your brain healthy are controlling your blood pressure and controlling your diabetes.

If these sound familiar, it is because these are also recommendations for improving cardiovascular health. **In essence, heart health = brain health.** This is one reason we study brain health in MESA-MIND.